

Appl. No. : 09/890,366
Filed : July 26, 2001

REMARKS

In response to the Office Action mailed September 19, 2005, Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments. As a result of the amendments listed above, Claims 1, 10-14 and 17-20 remain pending, with Claim 9 having been canceled, without prejudice or disclaimer, and Claims 1, 11, 12 and 17-20 having been amended. Claims 21-23 have been added.

In the changes made by the current amendment, ~~deletions are shown by strikethrough~~, and additions are underlined.

Claims 11-14 and 17-20 Comply With 35 U.S.C. § 112, Second Paragraph

Claims 11-14 and 17-20 presently stand rejected under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. In response, Applicants have amended Claims 11 and 17-20 to overcome the rejections under 35 U.S.C. § 112, second paragraph. Accordingly, reconsideration and withdrawal of the present rejection of Claims 11-14 and 17-20 under 35 U.S.C. § 112, second paragraph is respectfully requested.

Claims 1, 10-14 and 17-20 Are Allowable Over The Kamijo Reference

Claims 1, 10-14 and 17-20 presently stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamijo. Applicants respectfully disagree. It is respectfully submitted that Claims 1, 10-14 and 17-20, as amended herein, are allowable over Kamijo and the other prior art of record. Accordingly, reconsideration and withdrawal of the present rejections are respectfully requested.

The Kamijo reference involves a laser beam adapted to interact with a gas of volatile metal compound and/or an evaporated metal. As a result, the gas of volatile metal compound and/or the evaporated metal reacts and becomes particles. However, in the method of Claim 1, a laser beam irradiates aggregates which are not a gas or an evaporated state, but a sort of particle. Therefore, the principle and mechanism of the presently claimed method is different from those of the Kamijo reference.

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Moreover, the Kamijo reference is included in a field of a laser pyrolysis and the method disclosed therein cannot control the shape and size of manufactured particles. The objective of the Kamijo method is restricted only to the making of particles. However, the invention of Claim 1 can control the growth of aggregates and control the shape and size of manufactured particles. Advantageously, the method of Claim 1 allows particles of a desired shape and size to be produced. Therefore, the objective of the present invention of Claim 1 is different from that of the method disclosed in the Kamijo reference.

In order to expedite allowance of the present application, Claim 1 has been amended to clarify the distinctions over the Kamijo reference. Claim 1 recites a method of manufacturing fine particles by, among other recitations, supplying reactants into a flame, forming aggregates by collision and combination of particle nuclei in the flame and irradiating at least one laser beam into the aggregates. The method also includes selecting a power level of the at least one laser beam sufficient to cause the aggregates to coalesce and convert into smaller fine, substantially spherical particles.

As explained within the present specification, in addition to small particle size, it is preferable for the quality of the final product that the deposited particles are substantially spherical in shape. It is not necessarily the case that small-sized particles will be substantially spherical in shape. See page 15, lines 13-25 of the present specification. That is, dependent on the selection of the power level of the laser beam, the small-sized particles may be, or may not be, substantially spherical in shape.

There is no disclosure or suggestion in the Kamijo reference to select a power of the irradiated laser beam sufficient to cause the aggregates to coalesce and convert into smaller fine, *substantially spherical* particles. Further, there is no disclosure whatsoever as to the shape of the particles in Kamijo. As discussed in the immediately prior amendment, the Kamijo reference merely discusses the presence, or absence, of an irradiating laser beam. Therefore, because the characteristic of substantially spherical particles is not *necessarily* present in the Kamijo reference, a rejection based on the Kamijo reference alone cannot be maintained.

Furthermore, as also discussed in the immediately prior amendment, the Kamijo reference does not disclose that the power level of the laser beam is a result-effective variable with respect to the shape of the small-sized particles. Accordingly, adjustment of the power level to achieve

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substantially spherical particles would not be a matter of routine experimentation. For this reason as well, a rejection based on the Kamijo reference alone cannot be maintained. If the Examiner wishes to reject Claim 1 on this basis, Applicants request that the Examiner provide evidence that one of skill in the art would recognize that the power level of the irradiating laser beam is a result-effective variable with respect to the shape of the small-sized particles.

Independent Claim 12 includes similar recitations to those discussed above with respect to Claim 1. For at least the same reasons, Claim 12 is also allowable. Claims 10, 11, 13, 14 and 17-20 depend directly or indirectly from one of allowable Claims 1 and 12. These claims are allowable not only because they depend from an allowable claim, but upon their own merit as well.

New Claims 21-23 Have Been Added

New Claims 21-23 have been added. These claims are fully supported by the application as filed. Accordingly, no new matter has been added. Consideration and allowance of new Claims 21-23 is respectfully requested.

Claim 21 recites a method of manufacturing fine particles. The method includes, among other recitations, the steps of supplying reactants into a flame produced by a burner and irradiating at least one laser beam into the aggregates in the flame. The method further includes selecting a distance from the burner that the at least one laser beam is irradiated into the flame, wherein the distance has a positive correlation with the flow rate of the reactants.

Applicants respectfully submit that there is no disclosure or suggestion in the Kamijo reference, or the other prior art of record, to adjust the distance from the burner at which the laser beam is irradiated in relation to the flow rate of the reactants. Thus, there is also no evidence provided by the Kamijo reference that the distance from the burner would be a result-effective variable which would allow the claimed invention to be achievable through routine experimentation. Accordingly, Applicants respectfully submit that Claim 21 is allowable.

Claim 22 recites a method of manufacturing fine particles. The method includes, among other recitations, the steps of supplying reactants into a flame produced by a burner and irradiating a laser beam for a first pass through the flame at a first distance from the burner. The

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method further recites that the laser beam is redirected for a second pass through the flame at a second distance from the burner.

As disclosed in the present application, such a method permits a relatively low power laser to achieve a similar effect on the reactants as a higher powered laser. See page 9, lines 15-17 of the present specification. Applicants respectfully submit that there is no disclosure or suggestion to direct a laser beam multiple times through the flame. Accordingly, Applicants respectfully submit that Claim 22 is allowable over the Kamijo reference and other prior art of record. Claim 23 is allowable because it depends from allowable Claim 22 and is also allowable on its own merit as well.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims and specification. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicant's attorney, Curtiss C. Dosier at (949) 721-7613 (direct line), to resolve such issue promptly.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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